

My Marvellous Guide to Having an Echo

A Patient's Story



Authored by patients like you



HELPING PEOPLE LIVE BETTER WITH HEART FAILURE

WELCOME TO THE PUMPING MARVELLOUS FOUNDATION



Welcome to the Marvellous Guide to having an Echocardiogram (echo). The Pumping Marvellous Foundation is the UK's patient-led Heart Failure charity, however this guide is for anyone who is having an echo regardless of the reason why. As with all our guides, it has been put together by our marvellous team of patient educators.

Nick Hartshorne-Evans BEM – Founder and CEO, Pumping Marvellous Foundation

PLEASE NOTE: this booklet should not replace and/or substitute the interactions with and advice you are given by your healthcare professional. If you have any concerns about your condition then do discuss them with your healthcare professional at the earliest opportunity.

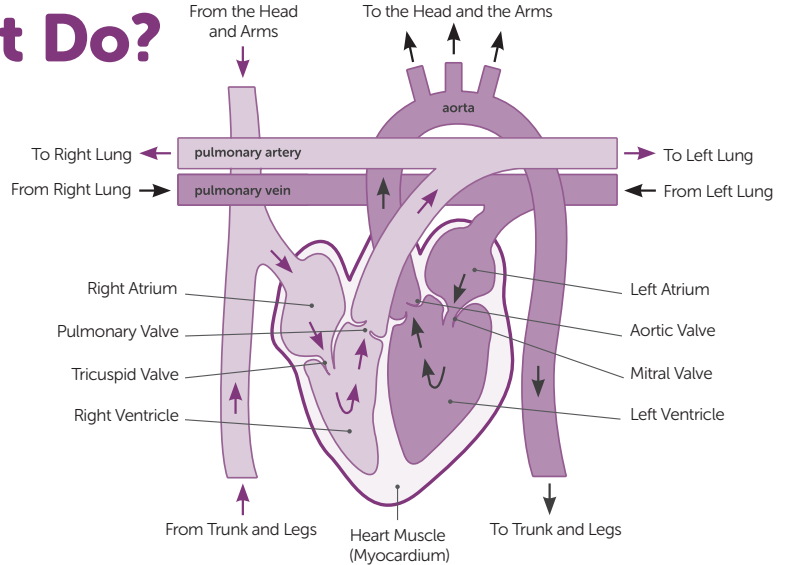
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What Does the Heart Do?

The heart is an organ that pumps blood around the body and is the size of a clenched fist. Blood containing oxygen and nutrients are needed by every part of your body in order to function. The heart sits in the centre of your chest tipping down to your left-hand side. It has different layers (one of which is made of muscle), so the heart can squeeze the blood out. It is told when to pump by a nerve that triggers the heart's own electric system.

The heart delivers the blood via arteries and it is then returned via veins. The diagram shows the inside of the heart, made up of four chambers: on the right-hand side, blood returns from having delivered oxygen around the body by the veins, the heart then sends the blood to the lungs, picks up oxygen and returns to the left side of the heart which then delivers the blood to the body via arteries. Note from the diagram the little gates letting the blood move from one chamber to another; these are called valves. Every time the heart pumps blood around the body, it is called a beat. The heart needs to be looked after in order for it to do its job effectively.



What Is An Echo?

Our patients tell us how significant having an echo can be. They appreciate that the test can inform their doctors if there is anything wrong with their heart, how well it is functioning, the cause of any irregularities and the likely treatment they may require. Patients have told us that sometimes they may feel apprehensive about having an echo, fearing what it may find. For others, having an echo may be a reassuring test that measures the progress that they are making. However, what all patients tell us is how appreciative they are to the various teams from around the country that provide this vital service on a daily basis.

Patients who have echoes see them as an important part of the care and treatment they receive.

It is good to remember just how significant the heart is to the body; it is a muscle that has the job of pumping blood around the body that carries oxygen and nutrients. Therefore, understanding what is happening to the heart and how well it is functioning is vital.

One of the key ways we are able to understand what is going on with the heart is by having a scan of the heart, commonly referred to as an echo or the more technical term, transthoracic echocardiogram.



How Does An Echo Work?

An echo uses high frequency sound waves to create a moving picture of your heart, similar to a scan that shows a growing baby. This is done by placing a probe (transducer) upon the chest that produces an image on a screen showing the inside and outside of your heart. An echo is carried out to assess the structure, function and size of the heart. The outcome of the echo will allow the medical team to consider appropriate treatment and make a plan for ongoing care if required.

What can it show?

Firstly, it can indicate what an excellent job the heart is doing.

Clinicians will look out for specific issues:

- If there is damage to the heart muscle from a heart attack as result of a blockage to the arteries that supply the heart muscle.
- It can also look at how the heart muscle is structured and if there is a problem as to how it is affecting the heart.
- It can measure how much blood is being pumped out of the heart, and if it is sufficient to meet the body's needs, or if the heart is stiff and failing to fill correctly.
- How the valves are structured, and if there are any problems that are causing them to work inefficiently.
- It can show if any congenital defects (present since birth), such as holes between the chambers, are present.
- If there is an infection or virus which has affected the heart.
- If any blood clots have accumulated in the heart.
- Any rhythm problems with the heart.

What Is A Normal EF?

Normal EF is seen as 55% – 70% without Heart Failure symptoms. Heart Failure with reduced Ejection Fraction (HFrEF) is any number ranging from 40% and below. Heart Failure with mildly reduced Ejection Fraction is any number ranging between 41% – 49%. Heart Failure with preserved Ejection Fraction remains in the normal range (55%-70%) but despite this, individuals experience typical Heart Failure symptoms. To find out more, please visit our website pumpingmarvellous.org/community-hub/support-guides and read our guide on "Know Your Type".

However, what is really important is how you feel. This is why we recommend the NYHA scale (The New York Heart Association) to measure how effectively your heart is pumping.

The NYHA Scale

The NYHA scale is usually used by Clinicians to assess you. However as you are the only one who knows how you feel, it's a great tool to help you explain to Clinicians what's been going on whilst they aren't there.

NYHA Class

Symptoms

Class 1

No limitation of physical activity. Ordinary physical activity does not cause undue tiredness, palpitations, or shortness of breath.

Class 2

Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in tiredness, palpitations, or shortness of breath.

Class 3

Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes tiredness, palpitations, or shortness of breath.

Class 4

Unable to carry out any physical activity without discomfort and tired and short of breath, even at rest. If any physical activity is undertaken, discomfort increases.

CLASS 1

"I can perform all physical activity without getting short of breath, tired, or having palpitations."

CLASS 2

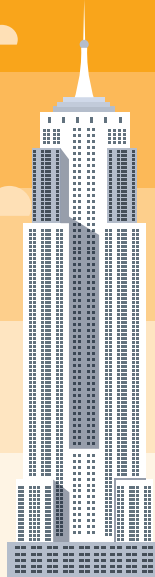
"I get short of breath, tired, or have palpitations when performing more strenuous activities. For example, walking on steep inclines or walking up several flights of steps."

CLASS 3

"I get short of breath, tired, or have palpitations when performing day-to-day activities (for example, walking along a flat path)."

CLASS 4

"I feel breathless at rest, and am mostly housebound. I am unable to carry out any physical activity without getting short of breath, tired, or having palpitations."



Does the echo hurt?

No, there are no side effects and it is extremely safe. It may be uncomfortable as occasionally the probe will need to be pressed firmly on your chest and ribcage.

Do I have to do any preparation, such as fasting?

For a normal echo, no, and you can continue to take any tablets, however there may be some specific things to do for more specialised echoes which we shall go on to mention.

What happens on the day?

You will receive an appointment letter which will detail the location and time of your echo. If you have any difficulties attending your appointment then do discuss this with your Heart Failure team. If preferred, ask if you can bring a relative with you, and ensure to confirm if you have an assistance dog.

The test takes place in a darkened room, enabling the operator to see images of your heart on-screen. You will be asked to strip to the waist, so wear a two-piece outfit that is easily removable (e.g. shirt/blouse and skirt/trousers). If you are uncomfortable exposing your torso, ask if there is a gown provided.

You will be asked to lie on a couch on your left side, with your left arm under your head. If you feel uncomfortable/your breathing is affected, inform the operator. Three small stickers attached to leads will be applied to your chest to measure your heart rate and rhythm. A probe the size of a thick marker pen (transducer) will be covered with cold jelly and positioned over your chest/rib area to take pictures of your heart. You may be asked to change position or alter your breathing pattern.

It is unlikely that you will view the screen; however, it will display moving images of your heart and colours which indicate how your blood is flowing, which may also be indicated by a whooshing sound. When the procedure is finished, tissues will be provided for removing the gel.

Read our Top Tips section and see what our patients have to say.

Who will perform the echo?

Your echo will usually be performed by a specialised cardiac physiologist or by a doctor. The doctor may be a specialist registrar (senior trainee) or consultant who is a specialist in undertaking complex echoes.

How long will it take?

It will depend on how much detail is required but it will generally take between 30 minutes and 1 hour.

When will I get the results, what can I ask?

Ask the clinician what is happening on the screen, they should be able to describe the picture to you. For example, what part of the heart they are seeing at the time. Obtaining your results will depend on the team who are conducting your investigation or who has ordered the echo. You may be given the results on the day or be asked to follow up the results with your doctor. Ask the clinician what the procedure for you is, when the results will be available and who will give you your results. Many patients in our community tell us that the results are important to them and can

cause considerable anxiety. For the vast majority of scans, they need to be analysed by your doctor and the results may not be immediately available. If you are keen to get the results as soon as possible then ask the person performing the scan how you can access your results as quickly as possible. Remember the vast majority of people performing scans are performing them for others, therefore be considerate of the position they are in.

How often will I need an echo?

It may be that you require only one scan, or that you require further scans to monitor any cardiac condition that you may have.

I have had an echo previously and received a copy of my result that went to my doctor. I didn't understand any of it, how can I find out what it means?

Read our glossary on common terminology relating to echoes.

Other Types of Echo

What is a Transesophageal Echo (TOE) and why do you have one?

Some patients may require a much more in-depth picture of the heart, particularly if your doctor wishes to see the back or the valves of your heart in more detail. If that is the case, they may ask to perform a transesophageal echo.

Do I need to do any preparation?

You will be asked to refrain from eating and drinking for approximately six hours before the procedure, however check with your team exactly how long they wish for you to fast for. You will be offered some mild sedation, so you will need someone to take you to your appointment. If you have the sedation you will not be able to drive yourself home as you may feel drowsy. As with the echo, if you have any concerns discuss with your team.

What happens on the day?

You will be asked to lie down on a couch and given a sedative via a needle into a vein in your arm; this will ensure that you are very relaxed, and some patients say that they can remember little of the event and will actually sleep through the procedure. A spray is also given to the back of your throat which will numb it. The doctor will then place a mouthguard in your mouth and you will be asked to swallow the probe. Once you have swallowed the probe, which is attached to the echo machine, it goes into the oesophagus (which is used to swallow food), as a consequence the doctor is able to see detailed pictures of your heart. Throughout the procedure, the doctor will reassure you and explain what is happening.

Will it hurt? Are there any side effects?

Patients say the spray is not pleasant, and it can be a little uncomfortable when the probe is withdrawn. You may have a sore throat for a couple of hours or feel your heart beat a little faster during the procedure. There is a small risk of a slight tear being caused to the throat as the probe is passed. Your doctor will explain any risks to you and ask you to sign a consent form before the procedure. Do ask any questions that may concern you to your doctor.

How long will it take?

It is expected to take approximately 30 minutes; however, you will be asked to rest for couple of hours afterwards as you may feel drowsy. The team will then let you know when you can eat and drink. When you do go home, take it easy; you can carry on with your normal activities 24 hours after your scan.

How do I get my results?

As with the normal echo, your doctor may explain your results once you awaken from the sedation or you may be given instructions as to how you can get your results.

What Is A Stress Echo?

Your doctor may wish to understand how your heart performs when it is under stress, meaning when it is having to undertake some activity. These tests are often advised when it is suspected you may have coronary heart disease or have had a previous heart attack. There are two ways that this can be done.

Exercise Stress Echo

This is undertaken by means of a treadmill (running machine) or bicycle. You have an echo as normal and then you are wired up and asked to walk on the treadmill or ride the bicycle for a few minutes. A further echo is undertaken at the end of the activity.

What do I need to do to prepare for my stress echo?

You will need no specific preparation but do wear a comfortable pair of flat shoes, and avoid wearing a long skirt (see our previous section for a normal echo). Your team will let you know if you need to stop any medication or to avoid any drinks that may contain caffeine.

What happens on the day?

You are carefully monitored throughout your procedure including heart rate and blood pressure. You will have sticky pads attached to your chest. The clinician may shave the areas where the pads go in order to get a good contact. The pads will have wires attached which link to a computer. Very gradually the treadmill speed is increased and so is the incline. You will be asked to say if you feel any chest pain, dizziness or undue breathlessness. You will continue until you feel you need to stop or the team will stop the test. A further echo of the heart is taken once you have come off the treadmill.

Will it hurt? Are there any side effects?

You are closely monitored during the procedure for any adverse effects. As with any form of exercise, you will get some breathlessness. Discuss how you are feeling as you are having the test with your clinician.

How long will it take?

That depends on how long you are exercising for. Allow approximately 90 minutes for your appointment, however, you may then go home and resume your normal activities.

How do I get my results?

As previously mentioned, you may get your results on the day of your appointment or you will be told how to obtain your results. Please refer to the previous section on this subject.

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Dobutamine Stress Echo (DSE)

If you are unable to perform on a treadmill due to your underlying physical health, then your doctor will suggest a DSE. This is a means of inducing the effects of the heart being under stress by the introduction of a drug, in this case Dobutamine. It is able to provide a very clear picture of your heart with no interference of heavy breathing or tremors which you may experience when exercising.

What do I need to do to prepare for my stress echo?

Your team may ask you to stop taking certain medication before the procedure, so do check if that is the case for you. You will be asked to refrain from having a heavy meal a couple of hours before the procedure, you will need someone to take you to your appointment as you will not be able to drive after the test. Do tell the team if you are pregnant, breastfeeding or have any allergies.

What happens on the day?

You will be having a normal echo, a scan picture is taken of your heart and the drug is slowly introduced. This is given via a needle into a vein in your arm until your heart rate increases to the desired target the team has set, they may also introduce a contrast so that clear outline pictures are seen. Further scan pictures are then taken. You will be closely monitored through the procedure. The effects of the drug wear off very quickly.

Will it hurt? Are there any side effects?

You will feel your heart beating faster and stronger as if you were exercising, but do tell the team if you feel any dizziness, chest pain or breathlessness.

How long will it take?

The procedure should take approximately one hour including time to recover, and if suitably recovered, you will be able to go home and resume your normal activities.

When will I get my results?

As previously mentioned, you may get your results on the day of your appointment or you will be told how to obtain your results. Please refer to the previous section on this subject.

Top Tips From Our Patient Educators

- “Remember to wear loose and easy to remove top clothing.”
- “Take some extra tissues with you in case you wish to remove the sticky gel privately.”
- “Visit the toilet before you go in for your scan, especially if you take water tablets for your condition.”
- “Ask when and how to get your results.”
- “I always have a nibble of something to eat before I go so that my tummy doesn’t rumble.”
- “Prepare, sit back and relax.”
- “Prepare a meal before you go so that you just need to pop it in the oven on your return.”
- “I try not to stress about tests. Just try and relax, what will be will be.”
- “I always try to view them as a means to an end...the quicker they are over, the quicker I can stop imagining what is wrong or can go wrong, after a while you just get used to having them.”



Glossary

BP – Blood pressure measures the force of pressure with which the heart delivers blood to your body.

ECG – Electrocardiograph, this records the electrical activity of your heart.

Echo – Echocardiogram, a scan of the heart.

HFpEF (Heart Failure with a Preserved Ejection Fraction) – Heart Failure when the heart is able to pump the blood out, but is failing to relax and fill with blood due to it being stiff.

HFrEF (Heart Failure with Reduced Ejection Fraction) – When the heart pumps a reduced amount of blood out to the body.

HR – Heart rate, how fast your heart beats.

Heart Failure – Heart Failure is a condition that occurs when the heart is unable to pump sufficient blood to provide for the needs of the body.

LVEF – Left ventricular ejection fraction which measures how well the heart pumps.

LVSD – Left ventricular systolic dysfunction is what you have if your LVEF is too low.

Normal LVEF is 55% or above (not necessarily 60-65%). Reduced LVEF is anything below 55% (mildly reduced 45-54%, moderately reduced 36-44%, severely reduced 35% or below).

Measurements – On an echo report it will indicate what sizes the heart muscles are and if they are within in the normal range.

Regurgitation – When the valves are leaking blood, this may be due to a fault with the valve or the heart failing to be able to pump the blood out of the heart.

Stenosis – When the valves of the heart are stiff and narrowed, affecting the flow of the heart.

How You Can Support The Charity

Your support gives the Pumping Marvellous Foundation its energy in supporting people and their families. The support received contributes significantly to the organisation's efforts to help Heart Failure patients.

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All guides are written by patients and clinically validated for accuracy by leading UK Heart Failure specialists.

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Pumping Marvellous Foundation.



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*Another Mini Toolkit by The Pumping Marvellous Foundation
Crowdsourced information from REAL patients.*

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Contact Us



01772 796542



www.pumpingmarvellous.org



hearts@pumpingmarvellous.org



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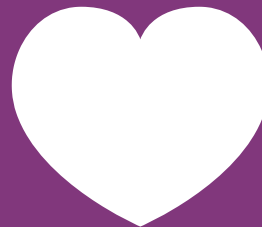
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